SYNTACTICAL RELATION BETWEEN SPATIAL CONFIGURATION AND SENSE OF SAFETY IN NEIGHBOURHOOD COMMERCIAL STREETS

SARA JABEROLANSAR

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy (Architecture)

Faculty of Built Environment and Surveying
Universiti Teknologi Malaysia

AUGUST 2018

To my beloved ***parents, and siblings***

To my heartiest and dearest ***husband*** for his love, care, supports and prayers during my study

ACKNOWLEDGEMENT

In the name of Allah, Most Gracious, Most Merciful to man and his actions. This work has been graced by the caring hands and minds of many special people. All of them have contributed something of themselves as thinkers and with their hands as makers and I thank them all.

I wish to express my sincere appreciation to my main thesis supervisor, Dr. Sharifah Salwa Binti Syed Mahdzar, for her valuable guidance and support during the period of this research. Her expert advice and continued encouragement have been instrumental towards the successful completion of this PhD degree.

Special thanks go to my colleagues at the department. Further to their interesting and helpful comments and suggestions during the technical talks, they have also contributed to create a pleasant and lively atmosphere during my days at the University.

Last but not least, heartfelt gratitude and thanks are due to my family. I feel a deep sense of gratitude for my parents who formed part of my vision and provide a persistent inspiration for my journey in life. I am fortunate to have my husband, Alireza Khademabbasi to share this valuable experience with me, and I am very grateful for his love, patience, encouragement and help throughout my research. The unconditional support from my family and friends that gave me the strength, courage and confidence to overcome all the difficulties during the course of this work.

ABSTRACT

Safety has been highlighted as one of the most important factors of urban life quality. The space syntax theory argues that streets with higher accessibility tend to have lower crime rates, which is the objective dimension of safety. The first point of human interaction with an urban environment is known as townscape. Feeling safe, which is a psychological and social phenomenon, is obtained through decoding this environmental understanding. The aim of this study is to identify the relationship between spatial configuration and pedestrian sense of safety in neighbourhood commercial streets. To this end, space syntax analysis was applied to measure the syntactical variables. Taman Universiti, Taman Ungku Tun Aminah, and Taman Mount Austin were chosen based on their integration measures in the global analysis. Forty streets with high local integration value were selected within the three areas and then observation was carried out in order to prorate 400 questionnaires among pedestrians in these streets. The questionnaires were distributed to collect data about townscape variables affecting pedestrian sense of safety. The impact of townscape factors on pedestrian sense of safety was examined by adopting exploratory and confirmatory factor analyses. The Pearson product-moment correlation coefficient was computed to measure the relationship between syntactical variables and townscape factors. The findings show the townscape factors which affected pedestrian sense of safety include: the sense of place; place identity; memorability; form; legibility; and visual pleasure, of which the last two are the most important factors. Furthermore, the legibility and visual pleasure are strongly correlated with two syntactical variables namely local integration and street connectivity. In fact, local integration and connectivity have positive correlation with some items of townscape such as easy navigation and clarity, and visual permeability and vitality which contribute to legibility and visual pleasure respectively. Results of this study clearly reveal that spatial configuration affects townscape factors and consequently pedestrian sense of safety.

ABSTRAK

Keselamatan diketengahkan sebagai salah satu faktor yang paling penting bagi kualiti hidup di bandar. Teori sintaks ruang berpendapat jalan-jalan yang mudah dilalui cenderung mempunyai kadar jenayah yang lebih rendah, yang merupakan dimensi objektif keselamatan. Titik pertama interaksi manusia dengan alam sekitar ini dikenali sebagai townscape. Rasa selamat merupakan fenomena psikologi dan sosial yang diperoleh melalui penyahkodan implikasi alam sekitar. Tujuan kajian ini adalah untuk mengenal pasti hubungan antara konfigurasi ruang dan keselamatan pejalan kaki di jalan-jalan komersil kejiranan. Untuk tujuan ini, analisis sintaks ruang digunakan untuk mengukur pembolehubah sintaktikal. Taman Universiti, Taman Ungku Tun Aminah dan Taman Mount Austin telah dipilih berdasarkan langkah integrasi mereka dalam analisis global. Empat puluh jalan raya dengan nilai integrasi tempatan yang tinggi telah dipilih dalam tiga kajian kes dan kemudian pemerhatian dijalankan untuk menguraikan 400 soal selidik dalam kalangan pejalan kaki di jalan-jalan ini. Soal selidik diedarkan untuk mengumpul data tentang pemboleh ubah lokasi bandar yang mempengaruhi keselamatan pejalan kaki. Kesan faktor bandar pada keselamatan pejalan kaki dikaji dengan menggunakan analisis faktor pengujian dan pengesahan. Kemudian pekali korelasi momen produk Pearson dikira untuk mengukur hubungan antara pembolehubah sintaks dan faktor bandar. Dapatan menunjukkan bahawa faktor bandar yang menjejaskan keselamatan pejalan kaki termasuk: rasa tempat, identiti tempat, mudah diingati, bentuk, keterbacaan dan keseronokan visual, yang mana dua faktor terakhir adalah faktor yang paling penting. Tambahan pula, keterbacaan dan keseronokan visual sangat dikaitkan dengan dua pembolehubah sintaks iaitu integrasi tempatan dan kesinambungan jalan. Malah, integrasi dan kesinambungan jalan tempatan mempunyai korelasi positif dengan beberapa item bandar seperti navigasi mudah, kejelasan, kebolehtelapan visual dan daya hidup yang menyumbang kepada keterbacaan dan keseronokan visual. Dapatan kajian ini dengan jelas menunjukkan bahawa konfigurasi ruang memberi kesan kepada faktor-faktor bandar dan seterusnya keselamatan pejalan kaki.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

WHO	-	World Health Organization
SPSS	-	Statistical Package for Social Sciences
AMOS	-	Analysis of Moment Structures
EFA	-	Exploratory Factor Analysis
CFA	-	Confirmatory Factor Analysis
SEM	-	Structural Equation Modelling
Ref	-	Reference
VGA	-	Visual Graph Analysis

LIST OF SYMBOLS

n	-	Sample size
Z	-	Level of significant
σ	-	Estimate of standard deviation
e	-	difference between the sample mean $\bar{x}$ and the population mean μ or the acceptable error
$\bar{x}$	-	Sample mean
μ	-	Population mean
X^2	-	Chi- square
df	-	Degree of freedom
CMIN	-	Chi- square value
GFI	-	Goodness of fit
CFI	-	Comparative fit index
TLI	-	Tuker lewis index
RMSEA	-	Root square error of approximation
N	-	Number
M	-	Mean
SD	-	Standard Deviation
P(p-value)	-	Significance level
ANOVA	-	Analysis of varaiance
%	-	Percentage
R^2	-	Coefficient of determination
AVE	-	Average variance extracted
CR	-	Composit reliability
ASV	-	Average shared variance
MSV	-	Maximum shared variance

R	-	Integration
Rn	-	Global scale integration
R3	-	Local scale integration (radious=3km)
SOS	-	Sense of safety
VP	-	Visual pleasure
VP1	-	Form Diversity
VP2	-	Attractive
VP3	-	Non Polluted
VP4	-	Aesthetics
VP5	-	Visual Permeability
VP6	-	Vitality
F	-	Form
F1	-	Geometry (Form and Size)
F2	-	Furniture
F3	-	Decoration (Material)
F4	-	Natural Elements
F5	-	Color
F6	-	Lighting
SP	-	Sense of place
SP1	-	Interest
SP2	-	Respect to Human Needs
SP3	-	Distinctiveness
SP4	-	Compatible Mix of Uses
PI	-	Place identity
PI1	-	Increasing Self Confident
PI2	-	Differentiation
PI3	-	Culture
PI4	-	Continuity
L	-	Legibility
L1	-	Easy Navigation
L2	-	Clarity
L3	-	Signage
L4	-	Guide

M	-	Memoriable
M1	-	Sense of Belonging
M2	-	Being Familiar
M3	-	Having Positive Memory

LIST OF GLOSSARY

Spatial configuration	-	spatial configuration means a set of relationships among parts (urban streets), all of which interdepend in an overall structure of some kinds. This concept addresses the whole of a complex rather than its parts
Axial map analysis	-	Axial map analysis explains the behaviour of people into a pattern of urban spaces.this method illustrate social urban space analysis and treatment of people together by computer simulation
Connectivity	-	Connectivity means the number of streets that are connected to a specific street
Control	-	Control measures what degree of choice each space represent for its immediate neighbours as a space to move to. Each space has a certain number k of immediate neighbours. Each space therefore gives to each of its immediate neighbours 1/k, and these are then summed for each receiving space to give the control values of that space. Spaces which have a control value greater than 1 will have strong control, those below 1 will be weak control spaces
Integratin	-	Integration shows how many turns have to be made from an origin to reach all other destination in the city, using shortest routes.
Inteligiblility	-	Intelligibility is the degree of perception of the environment that is directly related to Iegibility.
Legibility	-	The legibility of a route is the ease with which a route can become known or how easily people can understand it
Space syntax	-	Space syntax is a method for reading urban spaces which is an association between physical structure and social structure

Synergy	-	synergy, defined as the correlation between radius-3 and radius-n integration. It measures the degree to which the internal structure of an area relates to the larger-scale system in which it is embedded
Radius	-	Radius is the set of spaces selected from the whole system to be analysed round a root space. For example, it is used to select all spaces within 3000 m from a root space.
Natural movement	-	Natural movement is the proportion of urban pedestrian movement determined by the grid configuration itself
Gate count	-	Gate count is used to establish the flows of people at sampled locations within the city over the course of a day
Axial length	-	Axial line length measures the metric length of axial lines
Depthmap	-	DepthMap is a single software platform to perform a set of spatial network analyses designed to understand social processes within the built environment. It works at a variety of scales from building through small urban to whole cities or states. The objective of the analysis is to derive variables, which may have social or experiential significance
Gate	-	Gate is a conceptual line across a street used for counting movement flows in observation studies.

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter begins with the introduction of research background. The problem statement and research gap are presented in the following section. It additionally continues with defining the research question, aim and research objectives. Moreover, research methodology, the significance of study, and conceptual framework are explained in the next sections. Section 1.10 describes the thesis organization.

1.1 Background of the Study

Safety is one of the most basic needs of human communities after the basic physiological needs (hunger, thirst) in Maslow's hierarchy of human needs (Maslow, 1987). The relationship between spatial configuration and human behaviour is currently taken into consideration in many research projects to develop urban environments. The issue of safety and crime prevention has been one of the major themes of Space Syntax research. This study includes the relationship between movement pattern and spatial layout, and the impact of spatial design on sense of safety.

In explaining the concept of safety two distinct dimensions should be considered; an objective dimension, is realized as "non crime," i.e. the reduction or absence of crime occurrence (Laflamme *et al.*, 1999), and a subjective dimension,

which can be comprehended as the individual's perception or feelings of being safe (WHO, 1998; Maurice *et al.*, 1997). Both dimensions can influence each other either positively or negatively. Therefore, it is necessary to consider these two dimensions to improve the safety of the population.

In urban studies, safety has always been considered as one of the important indicators of quality of life and in this regard, various theories have been presented. The work of Jane Jacobs (1961) emphasized the importance of the social processes in creating a space that is safe and successful. Newman (1973) follows a similar approach on the importance of social behaviour and the development of a safe environment through creating "defensible" space. Besides these two theories, Hillier (1984) used the space syntax theory with a concentration on the relationship between natural movement and spatial configuration and its impact on safety.

Based on space syntax methodology, a number of research projects highlighted the importance of the presence of people in increasing safety. Hillier found that the determined spatial configurations can contribute to the possibility of the presence of people through movement generation. A study completed by Friedrich *et al.* (2009) attempted to find the relationship between anti-social behaviour and spatial configurations.

Hillier believed that if the urban spatial configuration makes the pedestrians' natural movement more difficult, there will not be a sufficient number of people to create the perception of a well appropriated and used space (Teymur *et al.*, 1988). In addition, some empirical researches support this idea (Jones and Fanek, 1997; Chih-FengShu, 2000; Shu and Huang, 2003). They indicated that places with higher level of accessibility tend to have lower crime rates, while places with low accessibility, i.e. segregated places, have higher crime rates. In other words, the presence of the sufficient number of people on the street reduces the crime occurrence; and where the safety derived from crime reduction is the objective aspect of safety.

1.2 Problem Statement

Crime and sense of unsafe are addressed as a result of population growth and rapid urbanization. They have been highlighted as the most significant social problem which impacts the life quality and hinder the social interaction (Marzbali *et al.*, 2012, Torstensson Levander, 2007 and Zedner, 2009, Savina *et al.*, 2013). Many studies have consistently proven that safety and sense of safety are the main concerns of urban areas (Shaw and Louw, 1998; Vanderschueren, 1998). Architecture and urban designer have attempted to reduce the crime occurrence through the design and arrangement of streets and public spaces while they have paid less attention to the subjective dimension of safety.

Similar to fear of crime, which is dependent on the perception of the environment (Hutchings, 1994), sense of safety is defined as a reaction to the space attributes which has a considerable role in human behaviour. To feel safe and free from concern is realized as a positive condition and a resource in everyday life (WHO, 1986, 1998). Although, the objective dimension of safety is an important issue, but the sense of safety (subjective dimension) is more crucial because sometimes people may fear in the safe environment (Nilsen *et al.*, 2004; Cho and Svanström, 2002).

Previous research findings have shown that fear of being a victim in relation to personal safety can have detrimental effects on well being of human as it can significantly limit their freedom of choice by negatively influencing their walking patterns through space (Nehme *et al.*, 2015; Sallis and Kerr, 2007; Rhodes *et al.*, 2006; Ellaway *et al.*, 2005; Ross and Mirowsky, 1999) which lead to their dissatisfaction with public spaces and neighbourhood places, and ultimately with life in general (Alfonzo, 2005). Therefore investigating the sense of safety in urban environment needs more studies.

1.3 Research Gap

According to the Lang (1994) “Feeling safe depends on the knowledge of the environment which needs the awareness of where you are in the space”. Therefore, spatial knowledge is essential to evaluate feeling of safety. To this end Space Syntax is used for the socio-spatial analysis of urban spaces (Syed Mahdzar, 2008; Dursun and Saglamer, 2003; Hillier and Hanson, 1998; Hillier *et al.*, 1983). It is a mathematically based environmental model that analyses the impact of spatial configuration on human behaviour.

As mentioned in section 1.1, crime reduction or prevention is the objective aspect of safety, which has been addressed in previous space syntax studies (Teymur *et al*., 1988; Chih-FengShu, 2000; Nubani and Wineman, 2005; Baran, *et al.*, 2006). Therefore, to find the relationship between spatial configuration and safety, the subjective aspect of safety also needs to be examined. In fact, if the relationship between spatial configuration (space syntax variables) and pedestrian sense of safety are found, an improved definition of safety based on spatial configuration will be reached by combining the space syntax theory with new finding.

Feeling safety is a psychological and social phenomenon that is affected by variety of factors and dimensions. Therefore, finding these factors is important to examine the sense of safety in public space. Previous studies used the measures of desirable and satisfactory urban environment for investigating the feeling of people in urban public spaces (Baba and Austin, 1989; Austin, *et al*., 1994).

Townscape is the first point of human’s contact with the environment. The human’s senses face the townscape and receive required information. Based on this information, people reach to a perception such as sense of safety. In fact, human arranges the received information in his mind and makes them meaningful for himself. According to the meanings formed in his mind, he feels safe or unsafe in various circumstances. In this study townscape variables are regarded as indicators affecting on sense of safety in urban space.

Therefore, to find the relationship between spatial configuration and sense of safety two issues should be studied separately: i) the sense of safety due to facing townscape variables, ii) the impact of spatial configuration on townscape variables which are effective on sense of safety.

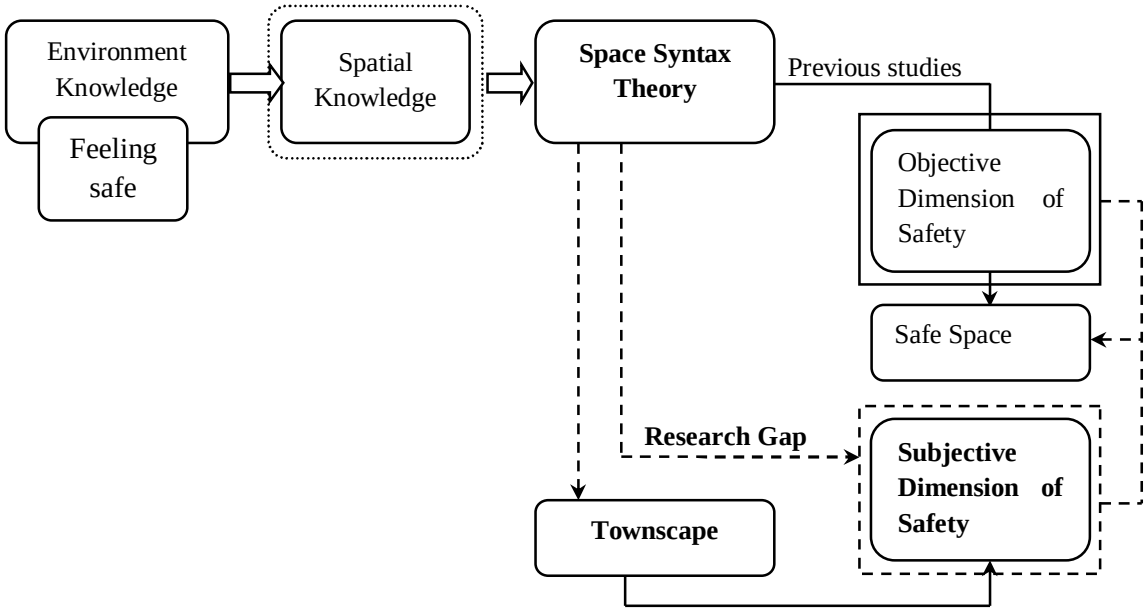

Figure 1.1 Research Gap

1.4 Research Questions

It is expected that at the end of the study, responses to the following research questions will be provided.

1. What are the latent factors of townscape which affect sense of safety?
2. To what extent is the each townscape factor impacting on sense of safety?
3. What is the relationship between spatial configuration and townscape factors that affect pedestrian sense of safety?

1.5 Research Aim and Objective

Sense of safety has been pointed out as one of the significant factors in improving the quality of life in urban environment in previous researches. They consider street as one of the key elements of urban environment that should be safe for pedestrian. The goal of this study is to identify the relationship between spatial configuration and pedestrian sense of safety in neighbourhood commercial streets. This aim will be achieved via the following objectives:

1. To examine the latent factors of townscape which affect on pedestrian sense of safety
2. To determine the impact of each townscape factor on pedestrian sense of safety
3. To measure the relationship between space syntax variables (integration value, level of connectivity, control, and line length) and townscape factors that affect the pedestrian sense of safety

1.6 Research Methodology

This study uses a quantitative method, which combines four research approaches:

1.6.1 Literature Review

Literature was carried out in order to understand the debate on the sense of safety and how the environment affects it as well as the factors of townscape which make pedestrians in the urban streets feel safe. It includes contributions from architects; social scientist, urban designers, planners, geographers, sociologists, and psychologist in order to better understand the complex dynamic of people's sense of

safety and environment. The literature review explores in detail many of the issues outlined above.

1.6.2 "Space syntax analysis"

The theory of natural movement from 'space syntax' method states the pedestrian movement pattern in urban space is essentially generated by its spatial configuration, as pedestrians tend to follow the most direct and shortest route to move from place to place (Hillier *et al.*, 1993, Hillier 1996, 1989). Space syntax axial line analysis is computed by software (Depthmap) simulation. It analyses the distribution and flow of movement (which includes people, cycles, traffic, etc) in the street. This constituted one of the important design issue related to the street safety due to accessibility of street in urban area (Hillier and Hanson 1984).

Space syntax methodology is used in order to analyse the structure of the urban streets. Through preparing the axial model of Johor Bahru city district, this study examines space syntax measures such as integration value, street connectivity, control, and line length. After finding the results from the axial model, these integrated and segregated parts of the neighbourhood are explored in depth with observation.

1.6.3 Observation Analysis

The third aspect of methodology includes observations of people activity in the street using "snapshot" method (space syntax manual 1999). This method has been adopted in the assessment and planning process of urban analysis (Francis 1984, Moudon 1992). The "snapshot" method maps out pedestrian activities within urban streets (Syed Mahdzar, 2008).

Another type of observation is gate observation for counting people movement. Pedestrian counts suggest an opportunity to obtain a sense of the unique movement patterns at each street. Scholars believe Pedestrian counts are a simple inexpensive and common way of measuring overall volumes at selected street (Major, 1997-98; Grajewski and Vaughan, 2001). The aim of this observation is to understand the effect of syntactical variables on pedestrian volume within studied area.

1.6.4 Questionnaire

Questionnaires are conducted after the observation. The purpose of this questionnaire is to collect data about variables affecting on pedestrian sense of safety in selected neighbourhood commercial streets. Specifically, this study will allow us to investigate reasons why pedestrian in these neighbourhood commercial streets have or do not have sense of safety according to townscape items. The summary of process is presented in a flowchart diagram in Figure 1.2.

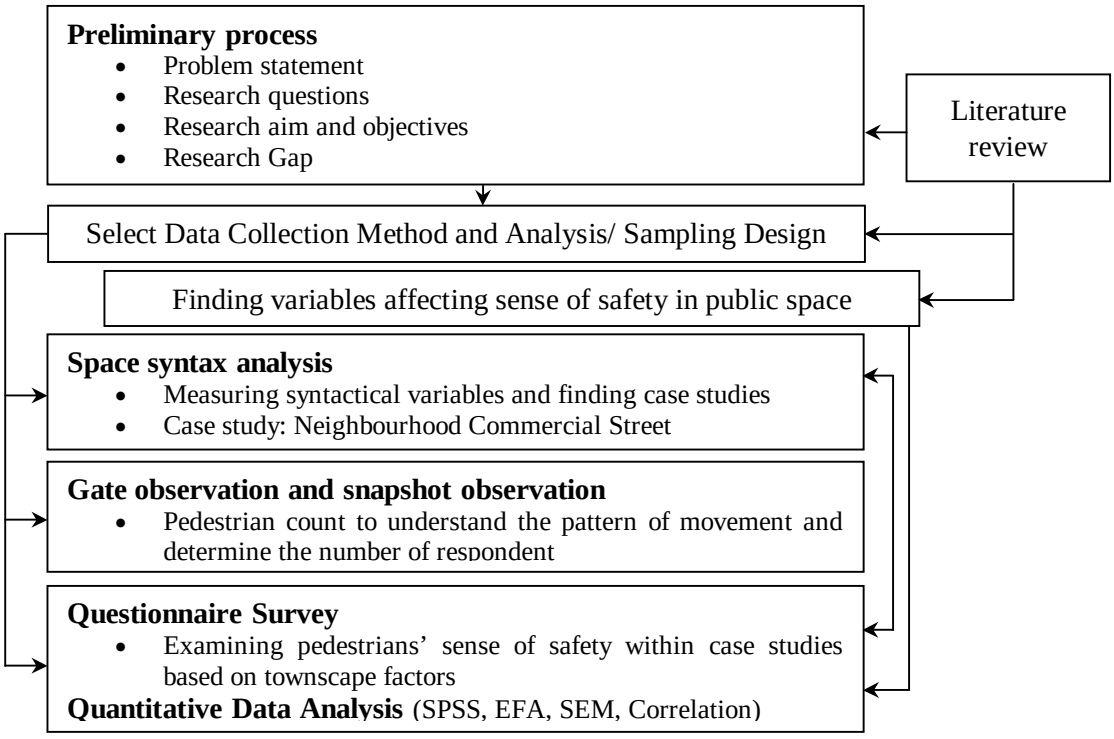

Figure 1.2 Research Methodology Process

1.7 Research Scope

As mentioned in problem statement environment affect on sense of safety. In fact, feeling safety in space is obtained through comfort and desirability of environment. Therefore due to having objective – subjective properties, townscape allows designers and planners to investigate pedestrian sense of safety.

This study is an empirical examination on feeling safety of pedestrian as respondent in the neighbourhood commercial street in Johor Bahru city district. The main competitive preference of neighbourhood commercial streets is their ability to support social interaction. In this study, the differences of feeling safety between genders were not investigated.

Three mixed land use neighbourhood are selected in this research. Urban design studies in the last few decades has shown that mixed-use neighbourhoods causes a more vital, and vibrant urban lifestyle predominantly in core areas – the neighbourhood commercial streets.

The studied streets are selected among the neighbourhood commercial streets with high integration values which presence of people could be observed. Therefore these streets are assumed to be safe objectively based on “space syntax” theories.

1.8 Conceptual Framework

This study explores the relation between urban configuration and pedestrian sense of safety trough the impact of syntactical variables on townscape factors in neighbourhood commercial streets. Spatial configuration means a set of relationships among urban streets; Configuration analysis begins with the characterization of the urban layout’s spatial properties. This study uses axial lines for analyzing the urban configuration; each line has own specifications which the

most important one is integration value. According to Space syntax theory high integrated streets are safe due to the presence of the sufficient number of people on the street. This theory emphasizes on people movement because the most urban use is movement.

A comprehensive review of literature provided ideas for the construct of the "conceptual framework". The construct as demonstrate in Figure 1.3 concentrated on urban configuration and syntactical variables such as local integration value, street connectivity, control value, and line length, which have been used in previous studies for examining the urban safety through crime reduction. Furthermore townscape variables were considered as the factors that can make sense of safety in urban spaces.

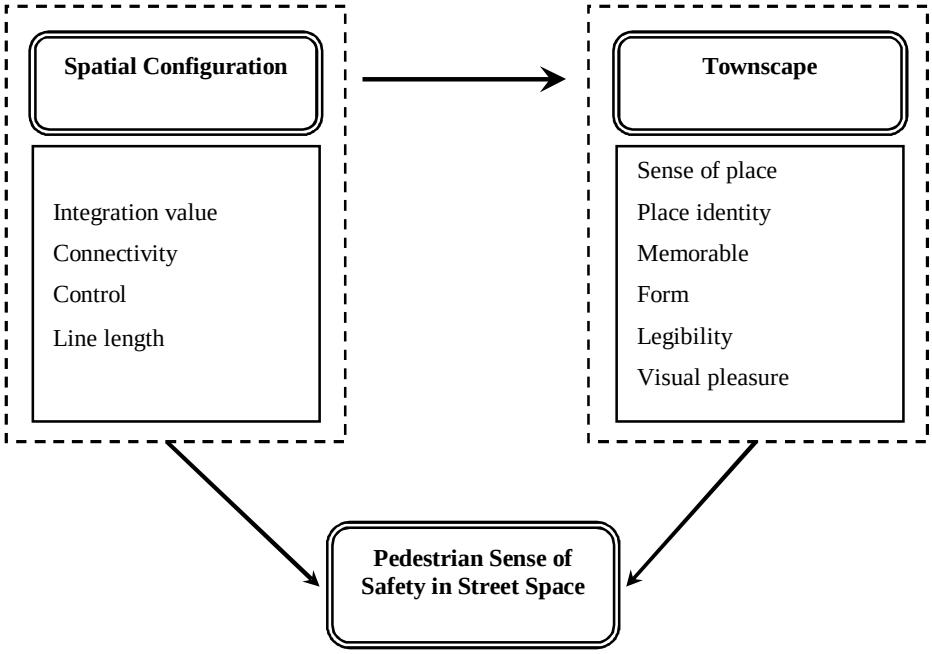

Figure 1.3 The conceptual framework of the research

1.9 Significance of the Study

The concept of urban space is extended to the unrestricted access spaces such as street, where most human interaction occurs. An appropriate urban space supports safety well. And conversely, improper urban space destroys safety and underlines the social harm (Crowe, 2000; Cozens *et al.* 2005; Cozens and Love, 2015). Accordingly, necessity of attention to the relationship between people's sense of safety in urban spaces become evident more than ever (Brunsdon *et al.* 1995; Chowdhury, 2014).

While promoting the sense of safety in neighbourhoods is essential for social life quality, it has yet to be defined how spatial configuration can affect such a sense of safety. Therefore, this study is significant because:

1. It will provide some empirical evidence to represent the relation between urban street network and the sense of safety;
2. The findings of this research may be used to help develop environmental design guidelines aimed at improving the quality of life in mixed-use neighbourhoods;
3. The findings of this study may lead to an improvement in safety definition based on space syntax theory for pedestrian.

1.10 Organization of Thesis

The thesis is structured into seven chapters and outlined as follows:

Chapter 1 presents the research and provides introductory background information that is relevant to the study. The chapter contains problem statement, research gap, determining research questions and formulating research aim and

objectives. Additionally, it includes the research scope and significance of the study and concludes with the conceptual and research framework.

Chapter 2 presents the literature review that focused on safety issue and its dimensions. The concepts and theories of urban safety with more emphasize on space syntax theory and safety is addressed in this chapter.

Chapter3 presents the literature review about safety on urban streets. It describes the relationship between sense of safety and satisfaction. The townscape variables which affect sense of safety are addressed in this chapter. In addition the factors of desirable urban environment are explained.

Chapter 4 introduces the research methodology; it indicates the research design process applied for this study. It contains the research approach, sampling procedure and design, case study, data collection and analysis methods. The chapter also explains space syntax as analytical techniques. In addition, the chapter discusses the instrument and content validity through “exploratory factor analysis” (EFA) and the construct validity through “confirmatory factor analysis” (CFA).

Chapter 5 is the syntactical variables measurement of case studies. This chapter presents the quantitative result of space syntax analysis extracted by simulation in Depthmap software and the result of observation study.

Chapter 6 presents the results derived from data analysis, explains and discusses the findings. The results focus on the exploratory and confirmatory factor analysis of townscape factors. It includes the EFA and CFA of townscape variables and their impact on pedestrian sense of safety. At the end of this chapter relationship between syntactical variables and townscape factors is measured.

Chapter 7 presents the concluding discussion of the research findings by providing answers to the research questions raised at the beginning of the study. The chapter concluded by stating the contribution of the study while suggesting

REFERENCES

Abel, C. (2000). *Architecture and identity: Responses to cultural and technological change*. New York: Architectural Press.

Abraham, A., Sommerhalder, K., & Abel, T. (2010). Landscape and well-being: a scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health*, 55(1), 59-69.

Adams, K. A. & Lawrence, E. K. (2014). *Research Methods, Statistics, and Applications*. Thousand Oaks, CA: SAGE Publications.

Adel, H., Salheen, M., & Mahmoud, R. A. (2016). Crime in relation to urban design. Case study: The greater Cairo Region. *Ain Shams Engineering Journal*, 7(3), 925–938.

Alfonzo, M. a. (2005). To Walk or Not to Walk? The Hierarchy of Walking Needs. *Environment and Behavior*, *37*(6), 808–836.

Allen, G. (1999).Cognitive Abilities in the Service of Wayfinding: A Functional Approach. *The Professional Geographer*, 51 (4), 555–561.

Alreck, P. L., & Settle, R. B. (2004). *The survey research handbook*. McGraw Hill, New York, NY.

Appleyard, D. (1981). *Livable streets. Berkeley*, CA, University of California Press.

Aragonés, J. I. & Arredondo, J. M. (1985) Structure of Urban Cognitive Maps. *Journal of Environmental Psychology*, 5(2), 197-212.

Atashinbar, M. (2009). The Continuity of Identity in Urban Landscape, *Bagh-I-Nazar*, 6(12), 45-56. [In Persian]

Austin, D. M., Woolever, C., & Baba, Y. (1994). Crime and safety related concerns in a small community. *American Journal of Criminal Justice*, 19(1), 79-97.

Awang, Z. (2012). *Structural equation modeling using amosgraphic*. ShamAlam:UiTM Press.

Baba, Y., & Austin, D. M. (1989). Neighborhood environmental satisfaction, victimization, and social participation as determinants of perceived neighborhood safety. *Environment and Behaviour*, 21(6), 763-780.

Bacon, E. N. (1976). *Design of cities*. New York: Penguin books.

Bafna, S. (2003), Space syntax: A brief introduction to its logic and analytic techniques. *Environment and Behaviour*, 35(1), 17- 29.

Baran, P. K., Rodriguez, D. A. & Khattak, A. J. (2008). Space syntax and walking in a New Urbanist and suburban neighbourhoods.*JournalofUrbanDesign*, 13(1), 5-28.

Baran, P. K., Smith, W. R., & Toker, U. (2006). *Conflict between space and crime: exploring the relationship between spatial configuration and crime location*. 37th annual conference of the Environmental Design Research Association (EDRA), Atlanta.

Barbisio, L Lettini & D Maffei (Eds.) (1999). *LaRappresentazione del Paesaggio*. Torino: TirreniaStampatori.

Batty, M., Cornoy, R., Hillier, B., Jiang, B., Desyllas, J., Mottrom, C., Penn, A., Smith, A., Turner, A. (1998). *The Virtual Tate*, CASA, London.

Bauman, Z. (1997).Ein Wiedersehen mitdemFremden.ders.:Flaneure, Spieler und Touristen.*Hamburg*, 205–225.

Beavon, D., Brantingham, P., &Brantingham, P. (1994). The influences of street networks on the patterning of property offenses.*Crime Prevention Studies*, *2*, 115-148.

Beck, M. P. & Turkienicz, B. (2009). Visibility and permeability: Complementary syntactical attributes of wayfinding. *Proceedings of the Seventh International Space Syntax Symposium*, Stockholm: Royal Institute of Technology, 009:1-7.

Beeler, J. N. (2011). *Security planning for public spaces: Testing a proposed CPTED rating instrument in Berlin, Germany*. Gainesville, FL: The University of Florida.

Beer,A., & Higgins, C. (2000). *Environmental Planning for Site Development: A Manual for Sustainable Local Planning and Design*, London ; New York : E & FN Spon.

Behzadfar, M., (2008). *Dictionary of urban design concepts*. The Tehran research project conducted at the Center. [In Persian]

Bender, J. W. & Blocker, G. H. (Eds) (1993). *Contemporary philosophy of art – Readings in analytic aesthetics.* New Jersey: Prentice Hall.

Bennett, G., McNeill, L., Wolin, K., Duncan, D., Puleo, E., & Emmons, K. (2007). Safe to walk? Neighborhood safety and physical activity among public housing residents. *PLoS Medicine*, *4*(10), 1599–1606; discussion 1607.

Bentler, P. M. & Bonnet, D. C. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88 (3), 588-606.

Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107 (2), 238-246.

Bently, I. (1985). *Responsive environments a manual for designers.* Amsterdam; Boston: Elsevier/Architectural Press.

Billig, M. (2006). Is my home my castle? Place attachment, risk perception, and religious faith. *Environment and Behavior*, 38(2), 248–265.

Bollen, K. A. (1989b). *Structural equations with latent variables.* New York: Wiley.

Bollen, K. A., & Long, J. S. (Eds) (1993). *Testing structural equation models.* Newbury Park, CA: SAGE Publications.

Bonnes, M., Lee, T., & Bonaiuto, B. (Eds.) (2003), *Psychological theories for environmental issues.* Aldershot: Ashgate.

Boyle, J. I., Findlay, C., & Forsyth, L. (2001). *An investigation into women's perceptions of fear and the design of the urban environment.* Ph.D. The Univeristy of Edinburgh.

Bravo, L. (2012). *Public spaces and urban beauty. The pursuit of happiness in the contemporary European City.* European symposium on research in Architecture and Urban Design, Porto.

Brower, S. N. (1996). *Good neighborhoods*: *A study of in-town & suburban residential environments.* Westport, CT: Praeger Publishers.

Brown, B. B., Perkins, D. D., & Brown, G. (2003). Place attachment in a revitalizing neighborhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, 23(3), 259–271.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research.* New York, NY; London: Guilford Press.

Browne, M. W., Cudeck, R., Bollen, K. A., & Long, J. S. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, 154, 136-136.

Brunsdon, C., Gilroy, R., Pour, A. M., Roe, M., Thompson, I., & Townshend, T. (1995). *Safety, crime, vulnerability and design: Aproposed agenda of study*. Global Urban Research Unit, University of Newcastle Upon Tyne, Department of Town and County Planning.

Burdette, H. L. and Whitaker, R. C. (2005). A national study of neighborhood safety, outdoor play, television viewing, and obesity in preschool children. *Pediatrics*, 116(3), 657-62.

Cai, K., & Wang, J. (2009). Urban design based on public safety. *Frontiers of Architecture and Civil Engineering in China*, 3(2), 219–227.

Calthorpe, P. (1993). *The next Americanmetropolis. ecology, community and the American dream*. New York: Princeton Architectural Press.

Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York: Russell SAGE Foundation.

Cantril, H. (1956). *The pattern of human concerns.* New Brunswick: Rutgers University Press.

Carmona, M., Heath, T. & Tiesdell, S. (2003). *Public places urban spaces: The dimensions of urban design*. Boston, MA: Architectural Press).

Centers for Disease Control and Prevention. (2006). *Physical Activity for Everyone: The Importance of Physical Activity: Can Everyone Benefit from Physical Activity?*

Chan, E., & Lee, G. (2008). Critical factors for improving social sustainability of urban renewal projects, *Social Indicators Research*, 85(2), 243-256.

Chatterjee, S. (2005). Children's friendship with place: a conceptual inquiry. *Children, Youth and Environments*, 15(1), 1–26.

Chekki, D. A., Cahill, S. E., & Lofland, L. H. (Eds.) (1994). *The community of the streets*. Greenwich, CT: Jai Press Inc.

Cheshmehzangi, A., & Heat, T. (2012). Urban identities: Influences on socio-environmental values and spatial inter-relations. *Procedia-Social and Behavioral Sciences*, 36, 253-264.

Chih-FengShu, S. (2000). Housing layout and crime vulnerability. *Urban Design International*, *5*(3-1), 177-188.

Cho, J. P., & Svanström, L. (Eds) (2002). *Developing Safe Communities – Two decades of experiences.* Suwon: Ajou University School of Medicine.

Chowdhury, U, (2014). Street crime and physical environment - from the perception of local people regarding security feelings. *International Journal of Architecture, Engineering and Construction*, 3(1), 66-81.

Clarke, R., & Eck, J. E. (2014). *Become a problem solving crime analyst in 55 small steps.* London: Jill Dando Institute of Crime Science.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Hillsdale, NJ: Lawrence Earlbaum Associates.

Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588-608.

Cooper, D. R., & S. Schindler, P. (2008). *Business Research Methods*. Boston: Mcgraw. Hill International Edition.

Cooper, D. R., & Schindler, P. S. (2006). *Marketing Research*. New York: McGraw–Hill/Irwin.

Cooper, R., Boyko, C., Evans, G., & Adams, M. *Urban Sustainability for the 24 Hour City*. Routledge, London.

Coupland, A. (ed.) (1997). *Reclaiming the City: Mixed use development.* London: E & FN Spon.

Cozens, P. (2007). Planning, crime and urban sustainability. *Sustainable Development and Planning III, 102*, 187-196.

Cozens, P., & Love, T. (2015). A review and current status of Crime Prevention through Environmental Design (CPTED). *Journal of Planning Literature*, 30(4), 393–412.

Cozens, P., Saville, G., & Hillier, D. (2005). Crime prevention through environmental design (CPTED): A review and modern bibliography. *Journal of Property Management*, 23(5), 328-356.

Cozens, P., Thorn, M., & Hillier, D. (2008). Designing out crime in Western Australia: A case study. *Property management*, 26(5), 295-309.

Craig, C. L., Brownson, R. C., Cragg, S. E., & Dunn, A. L. (2002). Exploring the effect of the environment on physical activity: A study examining walking to work. *American Journal of Preventive Medicine*, 23(2), 36-43.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.

Crowe, T. (2000). *Crime prevention through environmental design*. Butterworth-Heinemann, Stoneham, Massachusetts.

Crucitti, P., Latora, V. & Porta, S. (2006). Centrality in networks of urban streets. *Chaos*, *16*(1), 1-9.

Cullen, G. (1961). *Townscape*. London: Architectural Press.

Cullen, G. (1971). *The concise townscape*. London: Architectural Press.

Czerkauer, C. (2007). *Organizing the city :Morphology and dynamics, phenomology of a spatial lhierarchy.* PhD. Vienna University of Technology.

Dalton, R. C., & Bafna, S. (2003b). The syntactical image of the city: A reciprocal definition of spatial elements and spatial syntaxes. Paper presented at the 4th International Space Syntax Symposium London.

Dalton, R. C., H'olscher, C., & Turner, A. (2012). Understanding space: the nascent synthesis of cognition and the syntax of spatial morphologies. Environment and Planning B: Planning and Design, 39(1), 7-11.

Davenport, M. A., & Anderson, D.H. (2005). Getting from sense of place to place-based management: An interpretive investigation of place meanings and perception of landscape change. *Society and Natural Resources*, 18(7), 625–641.

De Vellis, R. F. (2003). *Scale Development Theory and Applications.* Thousand Oaks, CA Sage Publications.

De Wolfe, I. (1949). Townscape. *Architectural Review*, 106, 355-362.

Dekker, K. (2007). Social capital, neighbourhood attachment in distressed urban areas. A case study in The Hague and Utrecht, the Netherlands. *Housing Studies*, 22 (3), 355-379.

Desyllas, J., Duxbury, E. (2001). Axial Maps and Visibility Graph Analysis A comparison of their methodology and use in models of urban pedestrian movement. *Proceedings of the 3rd International Space Syntax Symposium*. Georgia Institute of Technology, Atlanta.

Dettlaff, W. (2014). Space Syntax Analysis Methodology of Understanding the Space. *PhD Interdisciplinary Journal*, 283- 291.

DeVellis, R. F. (2003). *Scale development: theory and applications*. Thousand Oaks, CA: SAGE Publications.

Dondis, D. A. (1973). *A primer of visual literacy*. Cambridge, MA: MIT Press.

Duany, A., Plater-Zyberk, E., & Speck. J. (2000). *Suburban nation: The rise of sprawl and the decline of the American dream.* New York: North Point Press, a Division ofFarrar, Straus and Giroux.

Duncan, M., & Mummery, K. (2005). Psychosocial and environmental factors associated with physical activity among city dwellers in regional Queensland. *Preventive Medicine,* 40(4), 363 – 372.

Dursun, P., & Saglamer, G. (2003). Spatial analysis of different home environments in the city of Trabzon. *Proceedings of the 4th International Space Syntax Symposium, University College London.*

Dyke, R. M. V. (1999). Space syntax analysis at the Chacoan outlier of Guadalupe. *AmericanAntiquity*, 64(3), 461-473.

Ekblom, P. (2011). Deconstructing CPTED…and reconstructing it for Practice, knowledge management and research. *European Journal on Criminal Policy and Research*, 17(1), 7-28.

Ellaway, A., Macintyre, S. and Bonnefoy, X. (2005). Graffiti, greenery, and obesity in adults: secondary analysis of European cross-sectional survey. *British Medical Journal*, 331(7517), 611–612.

Evans, J. D. (1996). *Straight forward statistics for the behavioral sciences.* Pacific Grove, CA: Brooks/Cole Publishing.

Everitt, B.S. (2006). The Cambridge dictionary of statistics. Cambridge: Cambridge University Press.

Ewing, R., DeAnna, M., Heflin, C. C., & Porter, D. R. (1996). *Best development practices.* Chicago, IL: APA Planners Press.

Eyler, A., Baker, E., Cromer, L., King, A., Brownson, R., & Donatelle, R. (1998). Physical activity and minority women: a qualitative study. *Health Education & Behavior*, *25*(5), 640–652.

Eyüpoğlu, E., Kubat, A. S., &Ertekin, Ö. (2007). A new urban planning approach for the regeneration of historical area within Istanbul's central business district.*JournalofUrbanDesign*. 12(2), 295-312.

Fang, Z., Li, Q., & Shaw, S. (2015). What about people in pedestrian navigation?, *Geo-spatial Information Science*, 18(4), 135–150.

Farrington, D. P., & Welsh, B. C. (2002). *Effects of improved street lighting on crime: A systematic review.* London: Home Office Research, Development and Statistic Directorate.

Feldman, R. M. (1990). Settlement identity: psychological bonds with home places in a mobile society. *Environment and Behavior*, 22(2), 183–229.

Feldman, R. M. (1996). Constancy and change in attachments to types of settlements. *Environment and Behavior*, 28(4), 419–445.

Field, A. (2009). *Discovering statistics using SPSS: Introducing statistical method.*Thousand Oaks, CA: SAGE Publications.

Foster, S., Knuiman, M., Wood, L., & Giles-Corti, B. (2013). Suburban neighbourhood design: Associations with fear of crime versus perceived crime risk. *Journal of Environmental Psychology*, 36, 112-117.

Francis, M. (1984). Mapping Downtown Activities. *Journal of Architectural and Planning Research*, 1(1), 21–35.

Franklin, T. W., Franklin, C.A, & Fearn, N.E. (2008). A Multilevel Analysis of the Vulnerability, Disorder, and Social Integration Model of Fear of Crime, *Social Justice Research*, 21(2), 204-227.

Frey, H. (1999). *Designing the City: Towards a More Sustainable Urban Form*. London: E & FN Spon.

Frey, H. (1999). *Designing the city: Towards a more sustainable urban form.* London: E & FN Spon.

Fried, M. (2000). Continuities and discontinuities of place. *Journal of Environmental Psychology*, 20(3), 193–205.

Friedrich, E., Hiller, B., & Chiaradia, A. (2009). Anti-social behavior and urban configuration: Using space syntax to understand spatial patterns of socio-environmental disorder. *Proceedings of the 7th Space Syntax Symposium, Stockholm*.

Fullilove, M. T. (1996). Psychiatric implications of displacement: Contributions from the psychology of place. *The American Journal of Psychiatry*, 153(12), 1516–1523.

Gallagher, N. A., Gretebeck, K. A., Robinson, J. C., Torres, E. R., Murphy, S. L., & Martyn, K. K. (2010). Neighborhood Factors Relevant for Walking in Older, Urban, African American Adults. *Journal of Aging and Physical Activity, 18*(1), 99-115.

Gehl, J. (2006). *Project for Public Spaces*, website: *https://www.pps.org/*

Golkar, k. (2006). Conceptual the Urban Townscape. *Abadi Journal*, 53. [In Persian]

Golkar, K. (2008). Conceptual evolution of urban visual environment; from cosmetic approach through to sustainable approach. *Environmental Sciences*, 5(4), 95-113.

Grajewski, T. & Vaughan, L. (2001). *Space syntax observation procedures manual*.London: University College London.

Gravetter, F. J., & Forzano, L. B. (2011). *Research methods for the behavioral sciences*. Mountain View, CA: Cengage Learning.

Greenbie, B. B. (1981). *Spaces: Dimensions of the human landscape*. New Haven, Conn: Yale University Press.

Groves, R. M. (1987). Research on survey data quality. *The Public Opinion Quarterly, 51*, 156-172.

Gustafson, P. (2001). Meanings of place: Everyday experience and theoretical conceptualizations. *Journal of Environmental Psychology*, 21(1), 5-16.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis*. Pearson Education Limited. Edinburgh. UK.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. Uppersaddle River, NJ: Pearson Prentice Hall.

Hair, J. F, Jr, Hult, G. T. M., & Ringle, C. M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Beverly Hills, CA: SAGE Publication.

Hanson, J. (1989). Order and structure in urban design: The plans for the rebuilding of London after the Great Fire of 1666.*Ekistics*, 56(334), 22-42.

Hanson, J. (1998). Decoding Homes and Houses. Cambridge: Cambridge University

Hartig, T., Nyberg, L., Nilsson, L. G., & Garling, T. (1999). Testing for mood congruent recall with environmentally induced mood. *Journal of Environmental Psychology*,19(4), 353–367.

Harvey, J. (1981), *Cognition, Social Behaviour, and the Environment*. Erlbaum, New Jersey. Lawrence Erlbaum Assoc.

Hashem, H., Abbas, Y. S., Akbar, H. A., & Nazgol, B. (2013). Comparison the concept of sense of place and attachment to place in architectural studies. *Malaysia Journal of Society and Space*, 9(1), 107–117.

Hashemi, S. M., Mahmoudinejad, H., & Ahadian, O. (2011). Improvement of Environment Security and Decrease of Crimes with the Confirmation of CPTED (with the Emphasis on Iran's Condition).*Journal of Sustainable Development*, 4(3), 142-151.

Hausleitner, B. (2010). *Tracing scopes of action. Approaching the complexity of the urban block*. M.A. Delft University of Technology.

Hay, I. (Ed.) (2005). *Using questionnaires in qualitative human geography*. South Melbourne: Oxford University Press.

Hay, R. (1998). Sense of place in developmental context. *Journal of Environmental Psychology*, 18(1), 5–29.

Herzog, T. R., and Chernick, K. K. (2000). Tranquility and danger in urban and natural settings. *Journal of Environmental Psychology*, 20(1), 29–39.

Hidalgo, M. C., & Hernandez, B. (2001). Place attachment: conceptual and empirical questions. *Journal of Environmental Psychology*, 21(3), 273–281.

Hill, R. (1998). What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6(3-4), 1-12.

Hillier, B & Hanson, J. (1984). *The social logic of space*. Cambridge: Cambridge University Press.

Hillier, B. & Sahbaz, Ö. (2005). High resolution analysis of crime patterns in urban street networks: An initial statistical sketch from an ongoing study of a London borough. *Proceedings of the 5th International Space Syntax Symposium, Delft.*

Hillier, B. (1996). Cities as movement economies. *Urban Design International*, 1(1), 49–60.

Hillier, B. (1996). *Space is the machine: A configurational theory of architecture.* Cambridge: Cambridge University Press.

Hillier, B. (2007). Space is the machine: A configurational theory of architecture. Space Syntax: London: Cambridge University Press.

Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge: Cambridge University Press.

Hillier, B., Burdett, R., Peponis, J. & Penn, A. (1987). Creating Life: Or, Does Architecture Determine Anything? *Architecture and Behaviour*, 3(3), 233-250.

Hillier, B., Hanson, J., & Penn. A. (1989), *Natural movement: or, configuration and attraction in urban pedestrian movement*, paper for the European Conference on the Representation and Management of Urban Change, Cambridge, London.

Hillier, B., Hanson, J., Peponis, J., Hudson, J., Burdett, R. (1983). Space syntax: a new urban perspective, *Architects Journal* 178 (48) 48-63.

Hillier, B., Penn, A., Hanson, J., Grajewski, T., & Xu, J. (1993). Natural movement: Or, configuration and attraction in urban pedestrian movement. *Environment and Planning B: planning and design*, 20(1), 29-66.

Hiss, T. (1990). *The experience of place*. New York: Vintage Books.

Ho, R. (2006). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. Boca, Raton, New York: Chapman & Hall/CRC, Taylor and Francis Group.

Hoelter, D. R. (1983). The analysis of covariance structures: Goodness-of-fit indices, *Sociological Methods and Research*, 11, 325–344.

Hoelter, J. W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods and Research*, 11(3), 325–344.

Holbrook, A. L., Green, M. C., &Krosnick, J. A. (2003). Telephone versus face-to-face interviewing of national probability samples with long questionnaires: Comparisons of respondent satisficing and social desirability response bias. *Public Opinion Quarterly*, *67*(1), 79-125.

Hölscher, C., Brösamle, M., & Vrachliotis, G. (2012). Challenges in multilevel wayfinding: A case study with the space syntax technique. *Environment and Planning B: Planning and design*, 39(1), 63-82.

Hongyan, Z. (2002). *The Image of the City and the Capital City of Culture*. Nanjing: Southeast University Press.

Hoon, T. K. (2003). *Crime Prevention through Environmental Design Guidebook*.Singapore: National Crime Prevention Council.

Hooper, D., Coughlan, J. & Mullen, M. R. (2008). Structural equation modelling: guidelines for determining model fit. *The Electronic Journal of Business Research Methods.* 6 (1), 53 – 60.

Hu, F.B., Stampfer, M.J., Solomon, C., Liu, S., Colditz, G.A., Speizer, F.E., Willett, W.C. & Manson, J.E. (2001). Physical activity and risk for cardiovascular events in diabetic women. *Annals of Internal Medicine*, 134(2), 96-105.

Hu, Q., Xiao, J., Xie, K., & Saraf, N. (2011). *Antecedents and consequences of trust in supply chain: the role of information technology*. Paper presented at the 19th European Conference on Information Systems (ECIS), Helsinki, Finland.

Hutchings, C. (1994). Creating Fear by Design. *Geographical Magazine*.

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation*. San Diego, CA: Educational and Industrial Testing Services.

Jacobs, A. B. (1993). *Great streets.* Cambridge, MA: MIT Press,

Jacobs, J. (1961). *The Death and Life of Great American Cities.*New York: Random House.

Jalaladdini, S., & Oktay, D. (2012).Urban public spaces and vitality: A socio-spatial analysis in the streets of Cypriot towns. *Procedia-Social and Behavioral Sciences,* 35, 664 – 674.

Jones, M. A., & Fanek, M. (1997). Crime in the urban environment. *Proceedings of the 1st International Space Syntax Symposium, London.*

Jongejan, A., &Woldendorp, T. (2013). A successful CPTED approach: The Dutch 'Police label secure housing'. *Built Environment*, 39(1), 31-48.

Jöreskog, K., & Sörbom, D. (1993), *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*. Chicago, IL: Scientific Software International Inc.

Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, 21(3), 233-248.

Jorgensen, L. J., Ellis, G. D., & Ruddell, E. (2013). Fear Perceptions in Public Parks: Interactions of Environmental Concealment, the presence of people recreating, and Gender. *Environment and behavior*, 45(7), 803-820.

Jormakka, K. (2006). The view from the tower. The art of the City: from CamilloSitte to today.*Datutop*, 27, 122-141.

Kaczynski, A. T., & Sharratt, M. T. (2010). Deconstructing Williamsburg: Using focus groups to examine residents' perceptions of the building of a walkable community. *International Journal of Behavioral Nutrition and Physical Activity, 7.*

Kaplan, R. (2001). The nature of the view from home: Psychological benefits. *Environment and Behavior,* 33(4), 507–542.

Kaplan, R., Kaplan, S., & Ryan, R. L. (1998). *With people in mind: Design and management of everyday nature*. Washington, DC: Island Press.

Karimi, K. (2012). A configurational approach to analytical urban design: Space syntax methodology. *Urban Design International*, 17 (4), 297-318.

Kenny, D. A. & Ledermann, T. (2010). Detecting, measuring, and testing dyadic patterns in the actor-partner interdependence model. *Journal of Family Psychology*, 24(3), 359–366.

Kerr, J., Norman, G. J., Sallis, J. F., Patrick, K. (2008). Exercise aids, neighborhood safety, and physical activity in adolescents and parents. *Medicine & Science in Sports & Exercise*, 40(7), 1244-1248.

Klarqvist, B. (1993). A space syntax glossary. *NORDISK ARKITEKTURF*,2,11-12.

kline, R. B. (2015). *Principles and practice of structural equation modeling*. New York, NY; London: Guilford Press.

Korpela, K. (1989). Place-identity as a product of environmental self-regulation. *Journal of Environmental Psychology*, 9(3), 241-256.

Korpela, K. M., Klemettilä, T., &Hietanen, J. K. (2002). Evidence for rapid affective evaluation of environmental scenes. *Environment and Behavior*, 34(5), 634–650.

Koseoglu, E. & Onder, D. E. (2011). Subjective and objective dimensions of spatial legibility. *Procedia –Social and Behavioral Sciences*, 30(0), 1191-1195.

Kotchen, M., & Reiling, S. (2000). Environmental attitudes, motivations, and contingent valuation of nonuse values: a case study involving endangered species. *Ecological Economics*, 32(1), 93–107.

Kothari, C. R. (2004). *Research methodology-methods & techniques*. New Delhi: New Age International (P) Ltd.

Krier, L. (1992). *Leon Krier: Architecture and urban design, 1967-1992*. New York: St. Martins Press.

Krier, R. (1979). *Urban space*. New York: Rizzoli international publications.

Kunstler, J. H. (1994). *The geography of nowhere: The rise and decline of America's man-made landscape*. New York: Simon & Schuster.

Kuo, F. E., & Sullivan, W. C. (2001). Aggression and violence in the inner city: Effects of environment via mental fatigue. *Environment and Behavior*, 33(4), 543–571.

Kuo, F. E., Bacaicoa, M., & Sullivan, W. C. (1998). Transforming inner-city landscapes: Trees, sense of safety, and preference. *Environment and Behavior*, 30(1), 28–59.

Laflamme, L., Svanström, L., & Schelp, L. (Eds). (1999). *Injury causation, injury prevention, and safety promotion – definitions and related analytical*

frameworks.Stockholm, Sweden, KarolinskaInstitutet: Safety Promotion Research.

Lang, J. (1987). *Creating Architectural Theory: The role of the behavioral sciences in environmental design.* New York: Van Nostrand Reinhold Co.

Lang, J. **(**1994). *Urban design – The American experience.* New York: Van Nostrand Reinhold.

Lang, J. (2005). Imagery and habitability in urban design: Can these two functions be reconciled? *City Planning Review*, 2, 27–32 (in Chinese).

Lazarus, R. S. (1966). *Psychological stress and the coping process.* New York: McGraw-Hill.

Lazarus, R. S. (1991). *Emotion and adaptation.* New York: Oxford University Press.

Leech, N., Barrett, K. C. & Morgan, G. A. (2005). *SPSS for intermediate statistics: Use and interpretation*. London: Lawrence Erlbaum Associates.

Lehman, M., & Boyle, M. (2007). *Healthy & Walkable Communities.* Institute for Public Administration College of Human Services, Education & Public Policy University of Delaware.

Levine, J. H. (1993). *Exceptions are the rule: An inquiry into methods in the social sciences*. Boulder, CO: Westview Press.

Lewis-Bech, M., Bryman, A. E., & Liao, T. F. (2003). *The Sage encyclopedia of social science research method.* Beverly Hills, CA: SAGE Publications.

Lofland, L. H. (1998). *The Public Realm: Exploring the City's Quintessential Social Territory*. New York: Aldine De Gruyter.

Long, Y, & Baran, P. K. (2012). Does Intelligibility Affect Place Legibility? Understanding the Relationship between Objective and Subjective Evaluations of the Urban Environment. *Environment and Behavior*, 44(5), 616-640.

Long, Y., Baran, P. & Moore, R. (2007). The role of space syntax in spatial cognition: Evidence from urban China. *Proceedings of* the 6th International Space Syntax Symposium*, June 12-15, Istanbul.*

Lopes, A.S.; Cavalcante, A.P.d.H. (2012). *Wayfinding measurement through path choice opportunity*. In Eighth International Space Syntax Symposium; Greene, M., Reyes, J., Castro, A., Eds.; Pontifical Catholic University of Chile (PUC): Santiago, Chile,.

Lopez, R. (2010). Sense of place and design. *Focus*, 7(1), 45-52.

Low, S. M., & Altman, I. (1992). *Place attachment*. New York: Plenum Press.

Lucas, P., Spence, J., Nelson-Carr, L., & Pitt, W. (2007). Crime prevention through environmental design guidelines for Queensland, part A: Essential features of safer places, website: http://www. police. qld. gov.au/programs/crime prevention.

Luhr, G. A. (2016). *The Effects of Frequency of Social Interaction, Social Cohesion, Age, and the Built Environment on Walking*. Portland State University.

Luymes, D. T. & Tamminga, K. (1995). Integrating public safety and use into planning urban greenways. *Landscape and urban planning*, 33(1), 391-400.

Lynch, K. A. (1981). A theory of good city form. Cambridge, MA: MIT Press.

Lynch, K. A. (1960), *The image of the city*. Cambridge, MA: MIT Press.

MacCallum, R.C., Browne, M.W., & Sugawara, H., M. (1996), Power Analysis and Determination of Sample Size for Covariance Structure Modeling, *Psychological Methods*, 1 (2), 130-49.

MacInnis, D. J., & Price, L. L. (1987). The role of imagery in information processing: review and extensions. *Journal of Consumer Research*, 13(4), 473-491.

Madanipour, A. (2010). *Whose public space?: international case studies in urban design and development*. Abingdon, Oxon;New York;, Routledge.

Mahmoudi, S, A. (2006). Urban Landscape Overview of Several Theory, *Abadi Journal*, 53. [In Persian]

Major, M. D. (1998). *Built environment: Advanced architectural studies.* MSc. University College London.

Manson, J. E., Hu, F. B., Rich-Edwards, J. W., Colditz, G. A., & Stampfer, M. J. (1999). A prospective study of walking as compared with vigorous exercise in the prevention of coronary heart disease in women. *New England Journal of Medicine,* 341(9), 650-658.

Mansouri, A, S. (2009). Urban landscape comprehensive narrative city. *Manzar Journal* , 3. [In Persian]

Manvichien, C. (2015). Vitality of Safety Factors: A Case Study of Thai Airways Passengers. *Procedia - Social And Behavioral Sciences*,197(25), 2103-2109

Marsh, H.W., Hau, K.T., and Wen, Z. (2004), In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes

and Dangers in Overgeneralizing Hu and Bentler's Findings, *Structural Equation Modeling*, 11 (3), 320-41.

Marsh, H.W., Hau, K.T., and Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in over generalizing Hu and Bentler's findings. *Structural Equation Modeling*, 11 (3), 320-41.

Marshall, C. E. (1991). Fear of crime, community satisfaction and self-protective measures: Perceptions from aMidwestern city.*Journal of Crime and Justice*, 14(2), 97–121.

Marzbali, M. H., Abdullah, A., Razak, N. A., & Tilaki, M. J. M. (2012). Validating crime prevention through environmental design construct through checklist using structural equation modeling. *International Journal of Law, Crime and Justice*, 40(2), 82-99.

Maslow, A.H. (1987). *Motivation and Personality*. New York, NY: Harper & Row.

Maslow, A.H. (1999). *Towards a Psychology of Being*. New York, NY: John Wiley & Sons.

Massey, D., & Jess, P. (1995). *A Place in the World? Places, Cultures and Globalisation*, Oxford: Oxford University Press/Open University Press

Matijošaitienė, I. (2014). Urban crime in the city of New Haven: Residential Burglaries. *Journal of Sustainable Architecture and Civil Engineering*, 9(4),16-25.

Matijošaitienė, I., Zaleckis, K., &Stankevičė, I. (2013). Sustainable city – a city without crime. *Architecture and Urban Planning*, 7, 59-64.

Maurice, P., Lavoie, M. Q., Chapdelaine, A., Bonneau, H. B, & Ellison, L. (1997). Safety and Safety Promotion: Conceptual and Operational Aspects. *Chronic Diseases and Injuries in Canada*, 18(4), 179-186.

McClure, R., Stevenson, M., & McEvoy, S. (Eds) (2004). *The scientific basis of injury prevention and control*. Melbourne: IP Communications.

Mehta, V. (2007). Lively streets: Determining environmental characteristics to support social behavior. *Journal of Planning Education and Research*, 27(2), 165-187.

Mehta, V. (2014). Evaluating Public Space. *Journal of Urban Design*, 19(1), 53-88.

Michalos, A. C. & Zumbo, B. D. (2000). Criminal victimization and the quality of life. *Social Indicators Research*, 50 (3), 245-295.

Miles, R., & Panton, L. (2006). The influence of the perceived quality of community environments on low-income women's efforts to walk more. *Journal of Community Health*, 31(5), 379–392.

Mohamed, A.A. (2012) Evaluating way-finding ability within urban environment. International Space Syntax Symposium; Greene, M., Reyes, J., Castro, A., Eds.; Pontifical Catholic University of Chile (PUC): Santiago, Chile.

Mohseni Tabrizi, A., Qahremani, S., &Yahak, S. (2011). Defenseless urban spaces and violence, Case Study: Tehran defenseless spaces. Applied Sociology, the twenty-second year, consecutive 44, 52.

Monteiro, C. & Cavalcanti, R. (2015). Spatial profiles of urban segments: Assessing place vulnerability to crime. *Proceedings of the 10th International Space Syntax Symposium*, 1–17. Lisbon.

Montgomery, J. (1998). Making a city: Urbanity, vitality and urban design. *Journal of Urban Design*, 3 (1), 93-116.

Morgan, G. A., Leech, N. L., Gloeckner, G. W., & Barrett, K. C. (2004). *SPSS for introductory statistics: Use and interpretation*. Hove: Psychology Press.

Moser, G., Pol, E., Bernard, Y., Bonnes, M., Corraliza, J. A., & Giuliani, M. V. (Eds.) (2002). *People, places, and sustainability*. Gottingen: Hogrefe and Huber Publishers.

Moudon, A.V. (1992). A catholic approach to organizing what urban designers should know. *Journal of Planning Literature*, 6(4), 331-349.

Mumford, L. (1938). *The Culture of Cities.* San Diego, CA: Harcourt, Brace and Company.

Munfortin, C., Ake, T., & Tisdil, S. (2004). *The Beautification and Decoration*. Beijing: Chinese Building Industry Press.

Nasar , J. L. (1998). *The Evaluative Image of the City*. London: SAGE Publications.

Nasar, J. L. & Jones, K. M. (1997). Landscape of fear and stress. *Envionment and Behavior*, 29(3), 291-323.

Nasar, J. L., Fisher, B. & Grannis, M. (1993). Proximate physical cues to fear of crime. *Landscape and Urban Planning*, 26(1-4), 161-178.

National Center for Statistics and Analysis. (2016). Pedestrians: (Traffic Safety Facts. Report No. DOT HS 812 493). Washington, DC: National Highway Traffic Safety Administration.

Nehme, E., Oluyomi, A., & TV, T. C. (2015). Environmental Correlates of Recreational Walking in the Neighborhood. *American Journal of Health Promotion*.

Nelessen, A. C. (1994). *Visions for a New American Dream.* Chicago, IL: Planners Press.

Neuman, W. L. (2011). Social research methods: Qualitative and quantitative approaches. Boston, MA: Allyn and Bocon.

Newman, O. (1973). *Defensible Space: Crime Prevention Through Urban Design*. New York: MacMillan.

Nilsen, P. (2006). The theory of community based health and safety programs: A critical examination. *Injury Prevention*, 12(3):140-145.

Nilsen, P., Hudson, D. S., Kullberg, A., Timpka, T., Ekman, R., & Lindqvist, K. (2004). Making Sense of Safety. *Injury Prevention*, 10(2), 71-73.

Norberg-Schulz, C. (1971). *Existence, space and architecture*. NewYork: Praeger.

Norberg-Schulz, C. (1979). *Genius Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli international publications.

Nubani, L. & Wineman, J. (2005). The role of space syntax in identifying the relationship between space and crime. *Proceedings of 5th International Space Syntax Symposium, TU Delft, Delft.*

Nunnally J, Bernstein L. (1994). *Psychometric theory*. New York: McGraw-Hill Higher, INC

Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.

Önder, D. E., & Gigi, Y. (2010). Reading urban spaces by the space-syntax method: A proposal for the South Haliç Region. *Cities*, 27(4), 260-271.

Owen, N., Humpel, N., Leslie, E., Bauman, A., & Sallis, J. F. (2004). Understanding environmental influences on walking: review and research agenda. *American Journal of Health Promotion*, 27(1), 67–76.

Ozbil, A. & Peponis, J. (2007). Modeling Street Connectivity and Pedestrian Movement According to Standard GIS Street Network Representations. *Proceeding of 6th International Space Syntax Symposium*, Istanbul.

Pain, R. & Townshend, T. (2002). A safer city centre for all? Senses of community safety in Newcatle upon Tyne. *Geoforum*, 33(1), 105-119.

Painter, K. (1996). The influence of street lighting improvements on crime, fear and pedestrian use, after dark. *Landscape and urban planning*, 35(2), 193-201.

Pakzad, J. (2005). *Design Guidelines of urban spaces in Iran*. Tarh Nashr Piam sima, Tehran. [In Persian]

Pallant, J. (2007). *SPSS Survival Manual: A step-by-step guide to data analysis using SPSS*. Milton: Allen & Unwin.

Pallant, J. (2013). *SPSS Survival Manual*. McGraw-Hill Education: Open University Press.

Parker, D., Lawrie, M., & Hudson, P. (2006). A framework for understanding the development of organisational safety culture. *Safety Science*, 44(6), 551–562.

Paschke, J. *Adaptive IT capability and its impact on the competitiveness of firms: a dynamic capability perspective*. Ph.D. RMIT University; 2009.

Passini, R. (1984). *Wayfinding in Architecture*. New York: Van Nostrand Reinhold.

Penn, A. (2003). Space Syntax and spatial cognition or why the axial line? Environment and Behavior, 35 (1), 30-65.

Penn, A., Hillier, B., Banister, D., & Xu, J., (1998). Configurational modeling of urban movement networks. *Environment and Planning B: Planning and Design*, 25(1), 59-84.

Peponis, J., Allen, D., French, S., Scoppa, M. & Brown, J. (2007). Street connectivity and urban density: spatial measures and their correlation. *Proceeding of 6th International Space Syntax Symposium*, Istanbul.

Peponis, J., Hadjinikolaou, E., Livieratos, C. & Fatouros, D. A. (1989). The spatial core of urban culture. *Ekistics*, 56(334/335), 43-55.

Peugh, J. L., DiLillo, D., & Panuzio, J (2013): Analyzing Mixed-Dyadic Data Using Structural Equation Models, *Structural Equation Modeling: A Multidisciplinary Journal*, 20(2), 314-337.

Pourjafar, M. R., Mahmodinegad, H., Rafieian, M., & Ansari, M. (2008). Promoting environmental security and reducing crime, emphasizing CPTED approach, *International Journal of Industrial Engineering & Production Management*, 19(6), 73-82.

Pourmohammadi, M. & Ghorbanian, M. (2013). Crime prevention in urban design: Towards space syntax approach as a quantitative analytic modeling of qualitative issue of security (Based on spatial configuration). *Armanshahr Architecture & Urban Development*, 6(10), 157-166.

Press

Project for Public Spaces. (2006). From Project for Public Spaces website: http://www.pps.org.

Proshansky, H. (1978). The city and self-identity. *Environment and Behavior*, 10(2), 147-169.

Proshansky, H. M., Fabian A. K., & Kamikoff, R. (1995). Place identity: Physical world socialisation of the self. *Journal of Environmental Psychology*, 3(1), 57-83.

Proshansky, H. M., Fabian, A. K. & Kaminoff, R. (1983). Place-identity: physical world socialization of the self. *Journal of Environmental Psychology*, 3(1), 57-83.

Proshansky, H. M., Ittelson, W. H., & Rivlin, L. G. (1976). *Environmental psychology: People and their physical settings.* New York: Holt, Rinehart and Winston.

Proshansky, H. M., Ittelson, W. H., &Rivlin, L. G. (1976). *Environmental psychology: People and their physical settings.* New York: Holt, Rinehart and Winston.

Punter, J.V., & Carmona, M. (1997).*The design dimension of planning : Theory, content and Best practice for design policy*. London; New York : E & FN Spon.

Radović, D. (2014). *Subjectivities in investigations of the urban: The scream, the mirror, the shadow.* Tokyo: flick Studio.

Raford, N., Ragland, D. (2003). *Space Syntax: an innovative pedestrian volume modeling tool for pedestrian safety*. UC Berkeley: Safe Transportation Research & Education Center.

Ralph, E. (2008). *Place and Placeless*, Pion. London.

Rapoport, A. (1977). *Human aspects of urban form: Towards a man-environment approach to form and design.*Oxford: Pergamon Press.

Ratnayake. R. (2013). Environmental features and sense of safety, The Sustainable *WIT Transactions on Ecology and the Environment*, 179, 377-388.

Reason, J. (2000). Safety paradoxes and safety culture. *Injury Control and Safety Promotion*, 7(1), 3-14.

Revenson, T. A., D'Augelli, A. R., French, S. E., Hughes, D., Livert, D. E., Seidman, E., Shinn, M., &Yoshikawa, H. (2002). *Ecological Research to Promote*

Social Change: Methodological Advances from Community Psychology. New York.: Academic/Plenum Publishers.

Rezazadeh, R. (2007). *Principles and Criteria bookkeeping requirements and Regulations urban Image*, Research project conducted at the Studies Center Architecture Urbanism investigations. [In Persia]

Rhodes, R., Brown, S., & McIntyre, C. (2006). Integrating the perceived neighborhood environment and the theory of planned behavior when predicting walking in a Canadian adult sample. *American Journal of Health Promotion*, 21(2), 110–8.

Ross, C. E., & Mirowsky, J. (1999). Disorder and decay: The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review*, 34(3), 412-432.

Rozman Cafuta, M. (2014). Visual perception and evaluation of artificial night light in urban open areas. *Informatologia*, 47(4), 257-263.

Rudofsky, B. (1969). *Streets for People: A primer for Americans.* Garden City, NY: Doubleday.

Rueb, L., & van Nes, A. (2009).Spatial behaviour in Dutch dwelling areas. How housing layouts affects its users' behaviour. *Proceedings of the 7th International Space Syntax Symposium, Stockholm.*

Russ, H.T. (2006). *Safe city strategy, Site Planning and Design Hand Book*. New York: GRAW HILL companies.

Russ, T. H (2009), *Site planning and design handbook*. New York: The McGraw-Hill Companies, Inc.

Saelens, B. E., & Handy, S. L. (2008). Built environment correlates of walking: A review. *Medicine and Science in Sports and Exercise*, 40(7), 550-566.

Salah Ouf, A. M. (2001). Authenticity and the sense of place in urban design.*Journal of Urban Design*, 6(1), 73-86.

Salehi, E. (2008). *Environmental Features of Safe Urban Areas.* Tehran: Study and Research Center of Urbanism and Architecture.

Sallis, J. F., & Kerr J. (2007). Physical activity and the built environment. *Journal of Physical Activity and Health*, 4(2), 228–229.

Salvesen, D. (2002). *The making of place. Urban Land*, 61(7), 36- 41.

Sarason, S. B. (1974). *The psychological sense of community: Prospects for a community psychology*. San Francisco: Jossey-Bass.

Saunders, M., Lewis P., & Thornhill, A. (2009). *Research methods for business students*. New Jersey: Prentice Hall.

Savina, N. V., Petrova, M. N., Egorov, V. B., & Argunova, A. N. (2013). Environment and quality of life, the environment and human health in the North. *Proceeding of Collected materials IV- Congress with international participation, Yakutsk.*

Scannell, L. & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology,* 30 (1), 1–10.

Seamon, D. (1992). *Dwelling, Seeing and Designing: Towards a phenomenological ecology*, New York: State University of New York Press

Shamsuddin, S. B., & Hussin, N. (2013). Safe city concept and crime prevention through environmental design (CPTED) for urban sustainability in Malaysian cities.*American Transactions on Engineering & Applied Sciences, 2*(3), 223-245.

Sharifian thani, M. (2001). Citizen participation in urban governance and urban management. *Journal of Modiriat Shahri*, 2. [In Persian]

Sharp, T. (1948). *Oxford Replanned.* London: Architectural Press.

Shaw, M., & Louw, A. (1998). *Environmental Design for Safer Communities: Preventing Crime in South Africa's Cities and Towns.* National Criminal Justic Peference Service.

Shenassa, E. D., Liebhaber, A., & Ezeamama, A. (2006). Perceived Safety of Area of Residence and Exercise: A Pan-European Study, *American Journal of Epidemiology*, 163 (11), 1012-1017.

Shiee, E. (2006). *Preparing the cities for children.* Tehran: Shahr Publication.

Shu, S., & Huang, J. (2003). Spatial configuration and vulnerability of residential burglary: A case study of a city in Taiwan. *Proceedings of the 4th International Space Syntax Symposium, London.*

Siebel, W., & Wehrheim, J. (2003).Security and the urban public sphere. *German Journal of Urban Studies,* 42(1).

Sitte, C. (2013). *The art of building cities: City planning according to artistic principles.* Eastford, CT: Martino Fine Books.

Southworth, M. (1989). Theory and practice of contemporary urban design. *Town Planning Review,* 6(4), 369-402.

Southworth, M. (2005). Designing the walkable city. *Journal of Urban Planning and Development*, 131(4), 246-257.

Southworth, M., & Ben-Joseph, E. (1996). *Streets and the Shaping of Towns and Cities*. New York: McGraw-Hill.

Stedman, R. C . (2002). Toward a social psychology of place: Predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior*,34(5), 361-581.

Steele, F. (1981). *Sense of place*. Massachusetts, CBI Publishing Company, Inc.

Steele, R. I. (1973). *Physical settings and organization development*. Reading, MA: Addison-Wesley.

Suddle, S. I., & Waarts, P. H. (2003). The Risk of Safety. *Risk Decision and Policy*, 1-22.

Summers, L., & Johnson, S. D. (2017). Does the configuration of the street network influence where outdoor serious violence takes place? Using space syntax to test crime pattern theory. *Journal of Quantitative Criminology*, *33*(2), 397-420.

Svanström, L. (2002). *Safe communities moving into Asia: What is our baggage and what is the future?*First Asian Regional Conference on Safe Communities. Developing Safe Communities – Two decades of experiences. Suwon.

Svanström, L., Andersson R. (1998). *Critical factors required for the successful mobilisation of communities to enhance safety*. Seminar on Safety Promotion: Conceptual and Operational Aspects, Quebec.

Syed Mahdzar, S.S. & Safari, H. (2014). Legibility as a Result of Geometry Space: Analyzing and Comparing Hypothetical Model and Existing Space by Space Syntax. *Life Science Journal*, 11(8), 309-317.

Syed Mahdzar, S.S.B. (2008). *Sociability Vs accessibility urban street life*. PhD. University College London.

Syed Mahdzar, S.S.B. (2013). Street for People: *Sustaining Accessible and Sociable Street in Pasir Gudang City Center*. Paper presented at the ninth international space syntax symposium Seoul.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.

Tabibian, M. (2002). Environment and townscape components. *The Journal of Environmental Design. 37-42.* [In Persian]

Talebi, N, & Farokhi, M. (2016). The role of light and color in urban beautification and its impact on the perception of citizens. *Bulletin of Environment, Pharmacology and Life Sciences*, 1(1), 36-43.

Tanaka, J. S., & Huba, G. J. (1985). A fit index for covariance structure models under arbitrary GLS estimation. *British Journal of Mathematical and Statistical Psychology*, 38(2), 197–201.

Teymur, N., Markus, T. A., & Wooley, T. (1988). *Rehumanizing Housing.* Buttersworths, London.

Tonkiss, Fran, (2005). *Space the City and Social Theory Social Relations and Urban Forms,* Polity Press.

Topçu, M., & Kubat, A. S. (2007). Morphological comparison of two historical anatolian towns. *Proceedings of the 6th International Space Syntax Symposium, Istanbul.*

Torstensson Levander, M. (2007). Trygghet, säkerhet, oroeller risk? (Security, safety, concern or risk?). Stockholm: Sveriges Kommuner och Landsting.

Traunmueller, M., Marshall, P., & Capra, L. (2016). ...when you're a Stranger": Evaluating Safety Perceptions of (un) familiar Urban Places. *Proceedings of the 2nd EAI International Conference on IoT in Urban Space, Association for Computing Machinery (ACM),* Tokyo.

Trowbridge, C. C. (1913). On Fundamental Methods of Orientation and Imaginary Maps. *Science*, *38*(990), 888-897.

Tuan, Y. F. (1980). Rootedness versus Sense of Place. *Landscape*, 24(1), 3-8.

Turner, A. (2001). Angular analysis. In J. Peponis, J. Wineman and S. Bafna (Eds.), Proceedings of the 3rd International Space Syntax Symposium, (pp. 30.1-30.11). Georgia Institute of Technology, Atlanta.

Turner, A. (2004). *DepthMap4: A Researcher's Handbook.London:* School of Graduate Studies,UCL.

Turner, A., Penn, A. (1999). *Making isovists syntactic: isovist integration analysis.* Paper presented at the 2nd International Symposium on Space Syntax, Universidad de Brasilia, Brazil.

Twigger-Ross, C. L., &Uzzell, D. L. (1996). Place and identity processes. *Journal of Environmental Psychology,* 16(3), 205-220.

Ujang, N. (2010). Place attachment and continuity of urban place identity. *Asian Journal of Environment-Behavior Studies,* 2(2), 117-132.

Uzzell, D. L., Pol, E., & Badenes, D. (2002). Place Identification, Social Cohesion and Environmental Sustainability. *Environment and Behavior*, 34 (1), 26-53.

van den Berg, M., Wendel-Vos, W., van Poppel, M., Kemper, H., van Mechelen, W., & Maas, J. (2015). Health benefits of green spaces in the living environment: A systematic review of epidemiological studies. *Urban Forestryand Urban Greening*, 14(4), 806-816.

van Dillen, S. M., de Vries, S., Groenewegen, P. P., &Spreeuwenberg, P. (2012). Greenspace in urban neighbourhoods and residents' health: Adding quality to quantity. *Journal of Epidemiologyand Community Health, 66*(6), e8-e8.

van Nes, A. & López, M. (2010). Macro and micro scale spatial variables and the distribution of residential burglaries and theft from cars: An investigation of space and crime in the Dutch cities of Alkmaar and Gouda. *Journal of Space Syntax*, 1(2), 314.

van Nes, A. & López, M. (2013). Spatio-socio classification of deprived neighbourhoods in the Netherlands. *Proceedings of the 19th International Space Syntax Symposium, Seoul.*

van Nes, A., (2008). Configurative Methods in Urban Studies, Delft: Techne Press.

van Nes, A., Berghauser Pont, M., & Mashhoodi, B. (2012). Combination of Space Syntax with Spacematrix and the Mixed Use Index. The Rotterdam South test case.*Proceedings of the Space Syntax. 8th International Symposium. Santiago.*

van Teijlingen, E., & Hundley, V. (2002).The importance of pilot studies. *Nursing Standard*, 16(40), 33–36.

Vanderschueren, F. (1998). Towards safer cities. *UNCHS Habitat Debate*, 4(1), 1–5.

Vernez-Moudon, A. (Ed.) (1991). *Public Streets for Public Use*. New York: Columbia University Press.

Wang Li, Wang Xingzhong. (2003), The perceived security-space of Chinese metropolis: A case study of Xi'an. *Modern Urban Research*, (5): 17–24 (in Chinese).

Warr, M. (1990). Dangerous situations: Social context and fear of victimization. *Social Forces*, 68(3), 891-907.

Wattage, P., Smith, A., Pitts, C., McDonald, A. & Kay, D. (2000). Integrating Environmental Impact, Contingent Valuation and Cost -benefit Analysis: Empirical Evidence for an Alternative Perspective. Impact Assessment and Project Appraisal. 18(1), 5-14.

Weisman, G. (1981). Evaluating architectural Legibility. *Environment and Behavior*, 13(2), 189 - 204.

Welander, G.,Svanström ,L.,& Ekman, R. (2000). *Safety promotion: An introduction.* Stockholm: Division of Social Medicine, Karolinska Institutet.

Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *Counseling Psychologist, 34*(5), 719-751.

Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, 8 (1), 84-136.

Whistler, W. M., & Reed, D. (1977). *Townscape as a philosophy of urban design*. Monticello, Ill: Council of Planning Librarians.

White, G. F. (1990). Neighborhood permeability and burglary rates. *Justice Quarterly*, *7*(1), 57-67.

Whitzman, C. (2008). *The Handbook of Community Safety, Gender and Violence Prevention.* Earthscan, London.

Whyte, W. H. (1980). *The social life of small urban spaces.* New York: Project for Public Spaces.

Wilson, C., & Davidson, D. (2009). An evaluation of the site specificity of soil elemental signatures for identifying and interpreting former functional areas, *Journal of Archaeological Science*, 36 (10), 2327-2334.

Wilson, G.A. (2000), *Complex spatial systems: the modelling foundations of urban and regional analysis,* Prentice Hall, Upper Saddle River, NJ.

Wood, L., Frank, L. D., & Giles-Corti, B. (2010). Sense of community and its relationship with walking and neighborhood design. *Social Science & Medicine*, 70 (9), 1381–1390.

World Health Organization. (1998). *Safety and safety promotion: Conceptual and operational aspects. Website: https://www.inspq.qc.ca/pdf/publications/150_SecurityPromotion.pdf*

Yaghmayi, S., & Baghdadi, A. (2014). Making Safety of Urban Spaces Using Crime Prevention through Environmental Design Approach (Case Study: District 19 of Tehran Municipality). *MAGNT Research Report*, 2(5), 243-253.

Ye, Y., & van Nes, A. (2014). Quantitative tools in urban morphology: Combining space syntax, space matrix and mixed-use index in a GIS framework. *Urban Morphology*, 18(2), 97-118.

Yeang, L. D. (2000). *Urban design compendium*. London: English Partnerships/Housing Corporation.

Zakariya, K., & Harun, N. Z. (2013). The people's dataran: Celebrating historic square as a potential temporary market space. *Procedia-Social and Behavioral Sciences*, 85, 592-601.

Zani, B., Cicognani, E., & Albanesi, C. (2001). Adolescents' sense of community and feeling of unsafety in the urban environment. *Journal of Community & Applied Social Psychology*, 11(6), 475-489.

Zedner, L. (2003). The concept of security: An agenda for comparative analysis. *Legal Studies*, 23(1), 153-175.

Zedner, L. (2003). Too much security? *International Journal of the Sociology of Law, 31*(3), 155-184.

Zedner, L. (2009). *Security: Key ideas in criminology series.* London and New York: Routledge.

Zhang, L., Chiradia, A., & Zhuang, Y. (2013*). In The Intelligibility Maze of Space Syntax: A space syntax analysis of toy models, mazes and labyrinths.* Paper presented at the Ninth International Space Syntax Symposium, Seoul.

Zhang, S., Liu, Y., & Nie, H. (2014). Geographical fFeaturebased research on urban color environment – Taking Wuhan as an example. *IERI Procedia*, 9, 190 – 195.

Zhende, H. & Lei, L. (2005). *Conspectus on Urban Disasters*. Tianjin: Tianjin University Press.

Zuniga-Teran, A.A., Orr, B.J.; Gimblett, R.H., Chalfoun, N.V., Marsh, S.E., Guertin, D.P., & Going, S.B. (2017). Designing healthy communities: Testing the walkability model. *Frontiers of Architectural Research*. 6(1), 63-73.